

What is claimed is:

1. A contact pressure sensor comprising:
a substrate for supporting the sensor,
a contact pressure sensitive layer having a material with piezo-resistive properties sensitive to pressure applied to the contact pressure sensor, the contact pressure sensitive layer having lattice structure different to the substrate;
an insulation layer disposed between the substrate and the contact pressure sensitive layer and for supporting the contact pressure sensitive layer on the sensor; and
a conductive layer disposed on the contact pressure sensitive layer for a conductive contact for the sensor.
2. A sensor according to claim 1 wherein the material of the contact pressure sensitive layer is a semi-conductor element from columns IIIB and VB of the Mendeleev table.
3. A sensor according to claim 2 wherein the material of the contact pressure sensitive layer is a ternary semi-conductor element from columns IIIB and VB of the Mendeleev table.
4. A sensor according to claim 1 wherein the material of the contact pressure sensitive layer comprises more than one layer of different elements from columns IIIB and VB of the Mendeleev table.
5. A sensor according to claim 1 wherein the material of the contact pressure sensitive layer is Aluminium Gallium Arsenide (AlGaAs).

6. A sensor according to claim 1 wherein the materials of the insulation layer is Gallium Arsenide (GaAs) and the conductive layer is doped Gallium Arsenide (GaAs).
7. A sensor according to claim 1 wherein the material of the substrate is silicon.
8. A sensor according to claim 1 further comprising:
 - a temperature sensitive layer having a material with piezo-resistive properties sensitive to temperature, the temperature sensitive layer having a lattice structure different to the substrate; and
 - an additional insulation layer disposed between the temperature sensitive layer and the pressure sensitive layers wherein the additional insulation layer has a resistance greater than either of the temperature sensitive layer and the pressure sensitive layer.
9. A sensor according to claim 1 wherein a meander pattern is etched on the conductive material to increase the sensitivity of the contact pressure sensor.
10. A sensor according to claim 1 wherein the sensor is arranged to withstanding contact pressure of greater than 40 MPa.
11. A method of making a contact pressure sensor comprising providing a first support substrate and a second support substrate, each having different lattice structures; forming a process post structure comprising:

depositing an insulation layer on the first support substrate;

depositing a pressure sensitive layer having a material with piezo-resistive properties sensitive to pressure applied to the contact pressure sensor disposed on the insulation layer, the pressure sensitive layer having a lattice structure different than the second substrate; and

depositing a conductive layer on the contact pressure sensitive layer for a conductive contact for the sensor; and transferring the process post structure from the first substrate to the second substrate.

12. A method according to claim 11 wherein forming a process post structure further comprises depositing a sacrificial layer on a surface of the first support wherein the sacrificial layer is disposed between the first substrate and the insulation layer.
13. A method according to claim 12 wherein transferring the process post structure further comprises removing the sacrificial layer from the process post structure.
14. A method according to claim 1-1 wherein forming a process post structure further comprises:
 - depositing a temperature sensitive layer having a material with piezo-resistive properties sensitive to temperature disposed on the first substrate; and
 - depositing an additional insulation layer disposed between the temperature sensitive layer and the pressure sensitive layers wherein the additional insulation layer has a

resistance greater than either of the temperature sensitive layer and the pressure sensitive layer.

15. A method according of claim 11 further comprising etching a meander pattern on the conductive material to increase the sensitivity of the contact pressure sensor.
16. A method according of claim 11 wherein the material of the contact pressure sensitive layer is a semi-conductor element from columns IIIB and VB of the Mendeleev table.
17. A method according to claim 16 wherein the material of the contact pressure sensitive layer is Aluminium Gallium Arsenide (AlGaAs).
18. A method according of claim 11 wherein the material of the second substrate is different to the original substrate.
19. A method according of claim 11 wherein the materials of the first substrate, the insulation layer and the conductive layer is Gallium Arsenide (GaAs).
20. A method according of claim 11 wherein the sensor is arranged to withstanding contact pressure of greater than 40 MPa.